10/811,012

CLAIMS

The invention claimed is:

1. A stem cell genetically altered to express a carbohydrate antigen not normally expressed by the cell.

2. The stem cell of claim 1, wherein expression of the carbohydrate antigen is controlled by a transcriptional control element that preferentially causes expression in undifferentiated cells.

3. The stem cell of claim 2, wherein the transcriptional control element is an OCT-4 promoter or a promoter of telomerase reverse transcriptase (TERT).

4. The stem cell of claim 1, genetically altered with a glycosyltransferase.

5. The stem cell of claim 4, wherein the glycosyltransferase is an α(1,3)galactosyltransferase.

6. The stem cell of claim 4, wherein the glycosyltransferase is an ABO blood group transferase.

7. The stem cell of claim 1, which is a human embryonic stem (hES) cell.

CLAIM AMENDMENTS

1. *(Previously presented)* A method of depleting undifferentiated stem cells from a cell population, comprising:

a) obtaining a cell population that comprises both differentiated cells and undifferentiated stem cells;

b) genetically altering undifferentiated stem cells in the population so that they contain a nucleic acid molecule comprising P–X, wherein X is a nucleic acid sequence that causes expression of a cell surface antigen not normally expressed in the population, and P is a transcriptional control element operatively linked to X, such that the surface antigen is expressed in the undifferentiated stem cells;

c) depleting undifferentiated cells from the population by combining the cells with a ligand specific for the antigen; and

d) culturing the remaining differentiated cells.

2. *(Previously Presented)* The method of claim 14, wherein the undifferentiated stem cells are primate pluripotent stem (pPS) cells.

3. *(Previously Presented)* The method of claim 15, wherein the ligand is an antibody or a lectin.

4. *(Previously Presented)* The method of claim 15, comprising combining the cells with ligand specific for the antigen, and separating cells that have not bound the ligand.

5. *(Previously Presented)* The method of claim 15, comprising combining the cell population or progeny thereof with complement and antibody specific for the antigen under conditions that permit the complement to lyse cells to which the antibody has bound.

6. *(Previously Presented)* The method of claim 14, wherein X encodes a glycosyltransferase.

7. *(Original)* The method of claim 6, wherein X encodes an α(1,3)galactosyltransferase.

8. *(Previously presented)* The method of claim 6, wherein X encodes an A or B transferase from the ABO Blood Group system.

9. *(Previously Presented)* The method of claim 14, wherein P is an OCT-4 promoter or a promoter of telomerase reverse transcriptase (TERT).

10. *(Previously presented)* The method of claim 14, wherein the cells have been genetically altered using a vector comprising P-X.

11. *(Previously presented)* The method of claim 14, wherein the cells have been genetically altered to place X under control of a promoter (P) present in the cell genome.

12. *(Previously presented)* The method of claim 15, wherein a) comprises genetically altering the cell population such that P–X is transiently expressed in undifferentiated cells in the population.

13. *(Previously presented)* The method of claim 15, wherein a) comprises genetically altering the cell population such that P–X is inherited by progeny of cells in the population, and thereby expressed in undifferentiated progeny.

14. *(Previously presented)* A method of producing differentiated cells, comprising

a) obtaining a cell population comprising undifferentiated stem cells that have been genetically altered to contain a nucleic acid molecule comprising P–X, wherein X is nucleic acid sequence that causes expression of a cell surface antigen not normally expressed in the population, and P is a transcriptional control element operatively linked to X, such that the surface antigen is expressed in undifferentiated cells;

b) causing at least some undifferentiated cells in the population to differentiate; and

c) culturing the remaining differentiated cells.

15. *(Original)* The method of claim 14, further comprising depleting undifferentiated cells from the population by combining the cells with a ligand specific for the antigen.

16 to 22. *CANCELLED*

23. *(Previously presented)* The method of claim 12, wherein a) comprises genetically altering the cell population with an adenovirus vector comprising P–X.

24. *(Previously presented)* The method of claim 13, wherein a) comprises genetically altering the cell population with a DNA plasmid or retrovirus vector comprising P–X.

25. *(Previously presented)* The method of claim 1, wherein the ligand is an antibody or a lectin.

26. *(Previously presented)* The method of claim 1, comprising combining the cells with ligand specific for the antigen, and separating cells that have not bound the ligand.

27. *(Previously presented)* The method of claim 1, comprising combining the cell population or progeny thereof with complement and antibody specific for the antigen under conditions that permit the complement to lyse cells to which the antibody has bound.

28. *(Previously presented)* The method of claim 1, wherein X encodes a glycosyltransferase.

29. *(Previously presented)* The method of claim 1, wherein P is a TERT promoter.

30 *(Previously presented)* The method of claim 1, wherein the promoter is an OCT-4 promoter.

31. *(Currently amended)* A method for preparing cells, comprising:

a) obtaining human embryonic stem (hES) cells that have been genetically altered so as to transcribe a nucleic acid sequence under control of a promoter that preferentially drives transcription in undifferentiated hES cells, wherein transcription of the nucleic acid causes expression of a surface antigen not normally expressed by ~~the cells~~ undifferentiated hES cells;

b) differentiating the hES cells; and then

c) formulating the ~~differentiated cells~~ cells from step b) for administration to a mammalian host.

32. *(Previously presented)* The method of claim 31, wherein the hES cells have been genetically altered to place the nucleic acid sequence under control of a promoter present in the cell genome.

33. *(Previously presented)* The method of claim 31, wherein the hES cells have been genetically altered to place the nucleic acid sequence under control of a heterologous promoter.

34. *(Previously presented)* The method of claim 31, wherein the promoter is a TERT promoter.

35. *(Previously presented)* The method of claim 31, wherein the promoter is an OCT-4 promoter.

36. *(Previously presented)* The method of claim 31, wherein the nucleic acid sequence encodes a cell surface protein not normally expressed in human cells.

37. *(Previously presented)* The method of claim 31, wherein the nucleic acid encodes a glycosyltransferase that causes expression of a cell surface carbohydrate to which some humans have naturally occurring antibody.

38. *(Previously presented)* The method of claim 31, wherein b) comprises differentiating the hES cells into neural cells.

39. *(Previously presented)* The method of claim 31, wherein b) comprises differentiating the hES cells into hepatocytes.

40. *(Previously presented)* The method of claim 31, further comprising depleting undifferentiated hES cells before the differentiated cells are formulated for administration to a mammalian host.

41. *(Currently amended)* The method of claim 40, ~~comprising combining the cells with~~ wherein the depleting step comprises adding a ligand specific for the antigen, and separating cells that have not bound the ligand.

42. *(Currently amended)* The method of claim 40, ~~comprising combining the cell population or progeny thereof with~~ wherein the depleting step comprises adding complement and antibody specific for the antigen under conditions that permit the complement to lyse cells to which the antibody has bound.

43. *(Currently amended)* A method of depleting undifferentiated stem cells from a mixed cell population, comprising:

a) obtaining a mixed cell population that comprises both differentiated cells and undifferentiated human embryonic stem (hES) cells;

b) genetically altering the hES cells in the mixed cell population so as to transcribe a nucleic acid sequence under control of a promoter that preferentially drives transcription in undifferentiated hES cells, wherein transcription of the nucleic acid causes expression of a surface antigen not normally expressed by ~~the cells~~ undifferentiated hES cells, thereby producing a genetically altered cell population;

c) depleting undifferentiated cells from ~~the population by combining the cells with~~ the genetically altered cell population by using a lectin or antibody specific for the antigen , thereby producing a more homogeneous cell population; and

d) formulating the ~~differentiated cells~~ more homogeneous cell population for administration to a mammalian host.

44. *(Previously presented)* The method of claim 43, wherein the promoter is a TERT promoter.

45. *(Previously presented)* The method of claim 43, wherein the promoter is an OCT-4 promoter.

48. *(Currently amended)* The method of claim 43, wherein c) comprises combining ~~the cell with~~ the genetically altered cell population with a lectin or antibody specific for the antigen, and separating cells that have not bound the lectin or antibody.

47. *(Currently amended)* The method of claim 43, wherein c) comprises combining ~~the cell population or progeny thereof~~ the genetically altered cell population with complement and antibody specific for the antigen under conditions that permit the complement to lyse cells to which the antibody has bound.

Upon allowance of the application, please renumber the claims as follows:

Claim	1	→	17
	2	→	2
	3	→	10
	4	→	11
	5	→	12
	6	→	3
	7	→	4
	8	→	5
	9	→	6
	10	→	7
	11	→	8
	12	→	13
	13	→	15
	14	→	1
	15	→	9
	23	→	14
	24	→	16
	25	→	18
	26	→	19
	27	→	20

Claim	28	→	21
	29	→	22
	30	→	23
	31	→	24
	32	→	25
	33	→	26
	34	→	27
	35	→	28
	36	→	29
	37	→	30
	38	→	31
	39	→	32
	40	→	33
	41	→	34
	42	→	35
	43	→	36
	44	→	37
	45	→	38
	46	→	39
	47	→	40